Chapter 14
Artificial Intelligence in Micro-Credentials for Open and Distance Learning: A Technologically-Enhanced Systematic Review

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ABSTRACT

Micro-credentials are growing rapidly, meeting the demand for a flexible workforce and aligning well with the ODL environment. The use of artificial intelligence is pushing education to new heights. However, AI's integration in micro-credentials for ODL is fragmented, limiting the field's expansion. This research aims to address this gap by conducting a systematic review using software to analyse the relevant literature comprehensively. Employing a hybrid approach of bibliometric and thematic analysis, the review examines forty-six articles on AI integration into micro-credentials in ODL, identifying research gaps and suggesting future directions. The review provides updated insights, benefiting both theoretical and practical applications. It offers a comprehensive reference for industry practitioners to bridge the gap between theory and practice, contributing new knowledge and identifying future research opportunities.

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INTRODUCTION

The integration of Artificial Intelligence (AI) into micro-credentials courses within open and distance learning (ODL) in higher educational institutions marks a pivotal shift in the educational paradigm, aimed at enhancing accessibility, personalisation, and efficiency. This evolution aligns with the rapid technological advancements and the increasing demand for flexible, lifelong learning opportunities that cater to a diverse global learner population. It is known that AI plays an important role in transforming ODL through micro-credentials by involving adaptive learning systems, personalised content delivery, and the automation of administrative tasks, which collectively aim to improve learning outcomes and student engagement. By leveraging AI technologies, institutions can offer more personalised and adaptive learning experiences, meeting the individual needs of learners and addressing the diverse competencies required in today's dynamic job market. This integration also promises to enhance the scalability and effectiveness of ODL programs, making higher education more accessible to a broader audience. However, the integration of AI into micro-credential courses within ODL contexts is not without its challenges. Many areas are yet to be explored given the current state of knowledge.

Nevertheless, emerging trends and innovative practices in the use of AI in micro-credentials within ODL highlight the potential for significant improvements in personalised learning, accessibility, and learner support. Thus, the integration of AI into micro-credential courses within ODL in higher education institutions may offer promising opportunities to redefine the learning experience, making it more personalised, accessible, and aligned with the needs of the 21st-century learner. By addressing the challenges and leveraging the emerging trends, higher education institutions can harness the power of AI to enhance the value and impact of their ODL programs and micro-credentials.

Background of Study

Open and Distance Learning (ODL) is an educational system that removes barriers related to time, location, and access, emphasizing the role of technology in facilitating education for learners who are physically separated from their instructors (Ghosh et al., 2012). ODL leverages technology and flexible methodologies to provide accessible, inclusive, and learner-centered education. In particular, micro-credentials provide a flexible learning pathway that caters to the needs of learners looking to upskill or reskill, making them particularly relevant in ODL settings. Micro-credentials, aligned with the gig economy, are short, industry-based learning units facilitated by digital platforms that contribute to education privatisation, transferring employment preparation costs to individuals and tightening higher education's ties to immediate